

ISET-2110: GAS TUNGSTEN ARC WELDING (TIG)

Cuyahoga Community College

Viewing: ISET-2110 : Gas Tungsten Arc Welding (TIG)

Board of Trustees:

November 2024

Academic Term:

Fall 2025

Subject Code

ISet - Integrated Systems Engineering

Course Number:

2110

Title:

Gas Tungsten Arc Welding (TIG)

Catalog Description:

Develop skills in Gas Tungsten Arc Welding (GTAW-TIG). Extensive guided instruction provided and prepares a student for the TIG certification test.

Credit Hour(s):

4

Lecture Hour(s):

2

Lab Hour(s):

4

Requisites

Prerequisite and Corequisite

ISet-1101 Welding Blue Print Reading or concurrent enrollment.

Outcomes

Course Outcome(s):

Utilize skills in GTAW-TIG to prepare parts or complete assigned work tasks according to job specifications.

Objective(s):

1. Interpret the different welding processes.
2. Practice welding safety through laboratory activities.
3. Utilize GTAW equipment in a proper standard of operation, that is, following GTAW-TIG procedures that produce strong, mechanically sound welds.
4. Demonstrate mastery of TIG welding technique in all positions.
5. Demonstrate mastery of welding technique in all positions.
6. Prepare welded work samples to American Welding Society Standards (AWS).

Course Outcome(s):

Be prepared to sit for Gas Tungsten Arc Welding GTAW-TIG certification test.

Objective(s):

1. Demonstrate the welding proficiency capable of passing GTAW-TIG certification tests.
 2. Demonstrate proper GTAW-TIG welding form and techniques to consistently produce structurally sound welds.
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Methods of Evaluation:

1. Laboratory assignments of welding operations
2. Written and hands-on quizzes covering homework and in-class demonstrations
3. Classroom participation
4. Final exam

Course Content Outline:

1. Concepts
 - a. Safety when operating GTAW equipment
 - b. GTAW Equipment set up and operation
 - c. Types of joints used in GTAW welding
 - d. Metal preparation for GTAW welding
 - e. Depth of bevel, size, and strength for GTAW welding
 - f. Tools
 - g. Supplies used in GTAW welding
 - h. Basic math
 - i. Shielding
 - j. Shielding gas
 - k. Measurements
2. Skills Utilizing GTAW equipment, the student will perform the following welding operations:
 - a. Weld joints in flat position
 - b. Weld joints in horizontal position
 - c. Weld joints in vertical position
 - d. Weld joints in overhead position
 - e. Weld butt, tee, and lap joints
 - f. Setup and turn down of welding station
 - g. Safety rule application
 - h. Select the proper welding process for type of metal
 - i. Prepare metal for weld
 - j. Select proper measuring and hand tools for specific jobs
 - k. Apply safety procedures
3. Issues
 - a. Safe installations
 - b. Math
 - c. Relate theory to practical application

Resources

Althous, Turnquist, Bowditch, Bowditch, Bowditch. *Modern Welding*. 13th ed. Goodheart-Wilcox, 2023.

Walker, Polanin. *Welding Print Reading*. 8th. Goodheart-Wilcox, 2023.

Bennett, Siy. *Blueprint Reading for Welders*. 9th. Delmar, 2014.

Jeffus. *Welding, Principles and Applications*. 8th. Delmar, 2020.

Bohnart. *Welding Principles and Practices*. 5th. McGraw Hill, 2021.

Resources Other

U/LINC Learning Management System Lincoln Electric Education.

<http://education.lincolnelectric.com/the-lincoln-weld-school/educator-professional-courses/ulinc/>

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